

Philatelic View of Polar Research

International Polar Years

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In its most general sense, geophysics is the study of the Earth, its land, oceans, and atmosphere. They are all found from the equator to the poles, and know no political boundaries. Therefore their scientific study invites cooperation among nations. In the early heroic era of polar exploration, men such as **John Franklin** (1786-1847) pictured on a Canadian stamp (1989/*Scott* 1234), and **Robert Peary** (1856-1920) depicted on stamps of Liberia (1990/*Scott* 1381), and U.S.A. (1986/*Scott* 2223). They placed the emphasis on nationalism and individual exploits rather than on scientific discovery.

Another approach was introduced in the late 19th century. Its roots can be traced to the 1853 International Marine Conference in Brussels whose goal was to create a common international framework for meteorological observations at sea. **Adolphe Quetelet** (1796-1874), at the time director of the Belgian Royal Observatory, served as president of the conference (Belgium, 1974/*Scott* 885). The conference had a strong meteorological component and provided the impetus for the establishment of the International Meteorological Organization (IMO) in Vienna, Austria, in 1873. The IMO provided a permanent framework for interna-



**Karl Weyprecht Depicted
On DDR 1982 Postmark**

tional cooperation in meteorology. The idea of international collaboration in other sciences was not far behind.

First Polar Year

Karl Weyprecht (1838-1881) was an Austro-Hungarian naval officer and Arctic explorer who was the co-leader of the expedition that discovered Franz-Josef Land in 1873. However, he was not the typical polar explorer of the time. He regarded most Arctic expeditions as being little more than northward dashes designed to gain publicity through their competitive and nationalistic aspects. He was convinced that polar activities should be driven by science rather than nationalism. This included coordination among nations in the form of an international network of stations that could make meteorological and other geophysical observations.

In the mid-1870s Weyprecht presented these ideas at several scientific conferences where they were favorably received. His passion inspired the Bavarian polar explorer and scientist **Georg von Neumayer** (1826-1909). In 1879 the two men presented a proposal to the 2nd International Meteorological Congress in Rome for an international polar research program in which simultaneous regular meteorological and magnetic observations would be made at a number of special stations in the Arctic and Antarctic. As a



**Adolphe Quetelet Was
Observatory Director
Belgium (*Scott* 885)**



**1882-1883 Orange Bay
Base At Cape Horn
FSAT (Scott C74)**

result, the International Polar Commission was formed later that year with the mandate of developing a detailed research plan. Unfortunately Weyprecht died in 1881, and it was left to von Neumayer and the commission to move forward.

The result was the First International Polar Year (IPY) which took place from August 1882 through August 1883. During this period, eleven nations organized 14 principal scientific expeditions (five in the European Arctic, two in Russia, one in Greenland, one in Alaska, three in the Canadian Arctic, and two in the sub-Antarctic). There were also several secondary expeditions.

The main scientific studies carried out were in the areas of meteorology, auroral studies, atmospheric electricity, and geomagnetism. Work in the areas of glaciology, geomorphology, botany, sea ice, and oceanography was also undertaken. Ethnographic studies of the native people were also carried out in Tierra del Fuego and in several other locations. The work completed during the first IPY established a standard for subsequent geophysical research in the polar areas, and demonstrated that international collaboration



**Prince Louis Discovery
Monaco (Scott 1358)**

was vital in such work. Weyprecht's dream had come true.

Three stamps were issued to commemorate the centenary of the first IPY. The French Southern and Antarctic Territory (FSAT, 1983/Scott C74) pictures the 1882-1883 Cape Horn Orange Bay Base. South Korea illustrated a protractor on a map on its centennial issue (1982/Scott 1289), and Monaco (1982/Scott 1358) pictured the "Prince Louis Discovery." Other postal items for the centenary of the first IPY include a 1981 Soviet stamped envelope and a 1983 German cover with a cachet depicting the German research station from the first IPY on South Georgia Island.

The only known philatelic item picturing Karl Weyprecht is a February 13, 1982, postmark on a German Democratic Republic cover. As a result of his dedication and vision, Weyprecht is considered to be the "father" of the International Polar Years. Georg von Neumayer also has a philatelic presence: his name appears in a German souvenir sheet (Scott 2143), and his portrait is found in a 1991 rubber stamp cachet issued by Germany for the 10th anniversary of the Antarctic station that bears his name.

Second Polar Year

In the early 20th century, worldwide geophysical knowledge continued to grow, but the study of the polar regions remained difficult and expensive and therefore advanced only slowly. In 1927 the meteorologists Johannes Georgi (1888-1972) and Leonid Breitfuss (1864-1950) of the *Deutsche Seewarte* in Hamburg proposed a second IPY. Meteorology and auroral and magnetic studies were again at the heart of the proposal. It was expected that an internation-



**Protractor On Map
For IPY Centennial
Korea (Scott 1289)**



Icebreaker *Sibiryakov* First
To Sail Northeast Passage
Russia (Scott C34)

al cooperative program making observations in those fields of study in the Arctic and Antarctic would bear scientific fruit that would find application in weather forecasting, wireless telegraphy, terrestrial magnetism, and marine and aerial navigation. The proposal was submitted to the International Conference of Directors of Meteorological Services in Copenhagen in 1928 where it was approved. The second IPY took place during the years 1932-1933, fifty years after the first IPY.

As many as 44 nations participated in the second IPY of which 22 established special scientific stations outside their borders. Russia in particular made a huge contribution. Its program involved 92 observing stations of which 32 were created specially for IPY. Two Russian stamps were issued in 1932 to mark this massive undertaking (Russia, Scott C34-C35) picturing the icebreaker *Sibiryakov* that was the first ship ever to sail the Northeast Passage non-stop from Archangel to the Pacific Ocean. The trip was led by the academician and polar explorer **Otto Schmidt** (1891-1956) who appears on



IPY 50th Anniversary Noted
With Base In Greenland
Poland (Scott 2541)

various Russian stamps (1935/Scott C59, 1966/Scott 3191A, and 1980/Scott 4885). Otto Schmidt, the *Sibiryakov* which also can be seen on Russia (1977/Scott 4579), and the route Schmidt followed are also depicted on a Belarus souvenir sheet (2001/Scott 406).

Other northern nations also had strong interest in the research of the second IPY. For example, the development of northern Canada had begun requiring more reliable weather information, improved means of navigation for aircraft and ships, and understanding of how geomagnetic storms and the aurora would affect communications. IPY research promised progress in all these areas. The U.S. contribution was the establishment by the second Byrd Antarctic Expedition of the first research site inland from the Antarctic coast. A meteorological station was installed approximately 200 km. south of "Little America."

Two stamps were issued to commemorate the 50th anniversary of the second IPY. French Southern and Antarctic Territory (FSAT, 1983/Scott C75) depicts Scorsby Sound Base in Greenland, and Poland (1982/Scott 2541) also pictures the base in Greenland. Other postal items for the 50th anniversary are a 1981 Soviet stamped envelope and a 1983 German Democratic Republic commemorative cover with a special cancel and cachet that shows a research station in Franz Joseph Land.

Third Polar Year

In 1950, several distinguished scientists became involved. They included



Polar Explorer Otto Schmidt
Russia (Scott 3191A)



**James van Allen Belt Was
Discovered During 3rd IPY
St. Vincent (Scott 2080f)**

Lloyd Berkner (1905-1967), **Sidney Chapman** (1888-1970), and **James van Allen** (1914-2006). They realized that technologies developed in World War II could be used in a new round of geophysical research. They also recognized that a period of maximum sunspot activity would take place in the 1950s. Berkner combined these ideas with the models of the first and second IPYs and proposed to the international scientific community that a third IPY take place only 25 years after the second one. His proposal was expanded by the International Council of Scientific Unions to include the whole world with emphasis on the Antarctic and the tropics. Van Allen is depicted on a stamp of St. Vincent (Scott 2080f).

The *Comite special de l'Annee geophysique internationale* (CS-AGI) was formed to coordinate the activities of the third IPY which was renamed the International Geophysical Year (IGY). The "year" was actually seven months long, from July 1, 1957, through December 31, 1958. Notable achievements and discoveries emerged during the third IGY including the first artificial satellite launches, the discovery of the van Allen radiation belt, and the first estimates of the mass of ice in the Antarctic ice cap.

There are a few philatelic items that recognize the relationship between the IGY and IPYs. FSAT (Scott C75a) that commemorated the first and second IPYs also marked the 25th anniversary of the IGY. The middle stamp of the strip (Scott C74) also depicts *Sputnik-1*, the main symbolic achievement of the IGY. Finally, the 1982 German Democratic Republic commemorative cover, already mentioned, bears a cachet that mentions both the first IPY and the IGY.

Fourth Polar Year

After the International Geophysical Year which was also the third IPY, further scientific studies continued to expand understanding of the complex interactions between the Earth's polar surfaces (land, ice, and water), the biosphere, and the atmosphere. This work has recently taken on a new sense of urgency with the realization that global warming is having particularly strong effects in the polar areas. Since continuing research is vital, the fourth IPY began March 1, 2007, and will continue through March 1, 2009. The fourth IPY continues the tradition with an international program of geophysical research in the Arctic and Antarctic.

The philatelic world celebrated the beginning of the fourth IPY with the issuing in early 2007 of a group of IPY-related souvenir sheets. Thus far this cooperative program includes eight countries: Canada, Denmark, Finland, Greenland, Iceland, Norway, Sweden, and the U.S.A. Russia, Serbia, and other IPY stamps will follow. Scott catalogue numbers for all these items are unknown at press time.

As a polar nation, **Canada** will be playing a major role in IPY. Canada's philatelic contribution is a souvenir sheet issued February 12, 2007, with two stamps showing Arctic fauna. One stamp shows the colorful head of a male eider duck. The other stamp depicts a recently discovered species called *Crossola millisaeare*, which is a tiny, bright red, deep sea jelly fish. The selva of the sheet includes a globe, polar map, and polar bears. Three languages are used on the sheet: English, French, and Inuktituk.

Denmark souvenir sheet issued January 10, 2007, has an ethnographic theme with one stamp illustrating wooden carvings from the Thule, Norse, and late Dorset cultures.



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The other Danish stamp shows a Canadian-built *Twin Otter* aircraft making ice measurements. The selvaige contains a satellite photograph of the region around the North Pole.

Finland produced a spectacular souvenir sheet on January 24, 2007, with a pair of overlapping stamps. Where the two stamps overlap, they share a hologram of a snowflake. The lower left stamp shows the Northern Lights, while the upper right stamp depicts an enlarged snowflake. The lower left portion of the selvaige shows icy blue wings. These refer to the research into adaptations of plants to changes in the climate and environment. There are several red dots on the map of Finland in the lower right corner denoting the locations of Finnish research stations.

Greenland produced two IPY stamps on January 15, 2007, showing ice cap drilling and the study of greenhouse gases. One of the Danish-led projects is to drill a deep-ice core to extract an ice core

that contains undisturbed ice from the Middle Ice Age of some 130,000 years ago.



Iceland souvenir sheet issued February 15, 2007, contains one stamp depicting a volcanic eruption in Vatnajökull Glacier and the other stamp portrays the mapping of the landscape beneath the Arctic ice cap using radio-echo sounding equipment. Glaciers cover more than ten percent of Iceland, and since the late 1800s they have shrunk in area by more than ten percent. If climate change models are correct, Iceland's glaciers will totally disappear in 200 years.

Norway issued a complex souvenir sheet on February 21, 2007. The circular device on the right side of one stamp is an instrument with water samplers used to record oceanographic data. In the foreground on the left is an ice drill and ice core. In the background are test tubes containing samples of plant and animal plankton that is being analyzed. The antenna on the right side belongs to the space geodetic research facility. The coast guard vessel *K/V Svalbard* can be seen on the left of the stamp that shows the Northern Lights. The selvaige contains a satellite image of the Spitzbergen archipelago near Norway. A row of photographs is found along the bottom of the sheet featuring Arctic explorer Fridtjof Nansen taking temperatures with a water sampler in 1898; a balloon launch; the glaciology expedition in 2004; a corner reflector used in glaciology work; research on sea ice in the Barents Sea in 1999; a researcher holding an ice core; and an array of measuring instruments.

Sweden chose a different approach as a tribute to IPY on January 25, 2007. Their souvenir sheet shows two stamps. One features the etching *Stenfragment 1* by Svenderik Jakobsson. The other shows the painting titled *Arctic Ocean* by Johan Pettersson. A topographic map of the

Arctic Ocean is pictured in the background of the sheet, along with colored symbols showing a neutrino reaction registered by the Armand telescope.

The U.S. souvenir sheet issued October 1, 2007, includes two self-adhesive stamps. One shows a photograph of the Aurora Borealis (Northern Lights) and the other stamp depicts the Aurora Australis. The inscription reads: "Continuing the tradition of international cooperation that began with the first IPY in 1882-1883, scientists from around the world will initiate a new era in polar research by participating in IPY 2007-2008. Working across many disciplines, they will conduct field observations, research and analysis to build upon current knowledge and increase our understanding of the roles that both polar regions play in global processes."

Editor's Note: The descriptions of the first eight 2007 IPY stamps have been expanded from an article by John Peebles in the June 2007 issue of *The Canadian Connection*.

Readers can find a complete list of IPY philatelic items on the webpage <http://www1.cira.colostate.edu/ramm/hillger/IPY.htm>.

Conclusion

Karl Weyprecht's vision from the 1870s of international cooperation in polar research, with coordinated observations, standardized data recording, and full data sharing, continues to inspire geophysical research programs, not only in the polar regions but also worldwide. The fourth IPY is only the latest in a long line of such research programs. Weyprecht's

spirit has lived on through each IPY, and his legacy of international scientific cooperation continues to benefit all mankind. ♦

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